

5 The Netview server 54 responds to the selection of one of the displayed application processes by effecting the launching of that application process via an interface process, such as a web-based browser application, a telnet process, or an SNMP application. More particularly, the Netview server 54 communicates with the SAN manager service 38 to retrieve information, such as, launch method and its respective parameters, therefrom. The SAN manager service responds to a request from the Netview server for the launch information by parsing the Rules file to generate an object, e.g., an XML object, that contains the requisite information, and transmits the information to the Netview server. The Netview server utilizes the object returned from the SAN manager service to effect the launching of the selected application process.

15 Once the selected application, e.g., a management application, is launched, the operator can utilize the application, via the interface software provided by the Netview server, to configure and/or manage the SAN component on which the application resides. This advantageously allows the operator, e.g., the SAN administrator, to manage a variety of SAN components, having different management applications, from a single entry point, that is, from the Netview server/console.

20 A further appreciation of the illustrated embodiment may be from the discussion below.

In the illustrated embodiment, the format of the rules file is comprised of three sections - the version, the supported device types, and a collection of the individual device rules themselves.

Version Section

The version section is used to hold the version of the rules file and is comprised of a major and a minor number. The San Manager software can handle minor version changes, but will not allow launch to operate with major version changes. If new fields are added, this would be considered a major change to the rules file and the major number would need to be updated along with the SAN Manager software. The addition of a new rule, a new device type, or a change in a current value, are considered minor changes as the format remains the same.

Device Type Section

This section is used to hold all device types for which rules are defined. If a rule is added for a device type that is not currently associated with any rule, then this device type is added to the device types section as one of the types.

For example, if the current version of the rules file contains switches and hubs in the device type section and all the rules relate to switches and hubs, then if another rule (say a CDRom) for a type other than switch or hub is added, a new type will be added to the device type section.

Rule Section

The rules section is comprised of multiple rules – one or more rules per managed device. The rule itself is comprised of two sections – the id section and the management information section. The id section is used to uniquely identify the device to be managed. The management information section is a collection of multiple types of management information, each one

describing a certain method for managing the particular device. There can be multiple management methods available for managing a particular device.

ID Section

- 5 The id section is comprised of a collection of parameters that are used to uniquely identify the device that the rule represents. A rule match is obtained by matching an object's attributes with the parameter values contained in the id section of the rule.

OR Operation

- 10 Normally, all parameters in the ID section are AND'ed together with the exception of the parameters with the same name that are listed consecutively in the ID portion of the file, which are OR'ed together. For example, a sample ID portion of a rule is shown below. Note that there are two parameters with the same name ("Type") in the ID portion. The software will interpret this as meaning that the ID is satisfied with an attribute value of "Switch" or "Hub".

15 <ID>

<Parameter>

<Name>Vendor ID</Name>

<Value>Brocade Communications, Inc.</Value>

</Parameter>

20 <Parameter>

<Name>Type</Name>

<Value>Switch</Value>

</Parameter>